REMARKS

Applicant has thoroughly considered the Examiner's remarks. Claims 1-29 and 31-36 are presented in this application for further examination. Reconsideration of the application claims 1-29 and 31-36 in view of the following remarks is respectfully requested. The following remarks have been arranged according to the order addressed in the Office action.

Drawings

Applicant again respectfully requests the Examiner to indicate whether the drawings are accepted.

Claim Rejections under 35 U.S.C. § 103

Claims 1-11, 14, 15, 23-28, and 33-35 stand rejected under 35 USC §103(a) as being unpatentable over Hinckley et al. (U.S. Patent Publication No. 2002/0067334) in view of Van Schyndel et al. (U.S. Patent No. 6,859,141).

Claim 27

Claim 27 discloses a method comprising:

> energizing at least two electrodes, said at least two electrodes being operatively connected to a data input device configured to interact with a tracking surface;
>
> measuring an electrical impedance between said at least two electrodes; and
>
> determining the relative distance between said data input device and said tracking surface as a function of said measured impedance.

To establish a *prima facie* case of obviousness, the Office must demonstrate that every claim requirement is taught or suggested by the prior art.[1] Applicant respectfully submits that the cited references, alone or in combination, fail to teach or suggest each and every claim requirement as set forth in independent claim 27.

The Office correctly points out that Hinckley fails to teach or suggest a proximity sensor comprising at least two electrodes, measuring an electrical impedance between the two

[1] In re Royka, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974) (see also M.P.E.P. § 2143).

electrodes and determining the relative distance between the input device and the tracking surface as a function of the measured impedance.

The Office asserts that Hinckley modified by Van Schyndel would determine the relative distance between the data input device and the tracking surface as a function of the measured impedance. However, the Office explains that Van Schyndel teaches a sensor having an effective sensing range, the sensor processing the signals when an object approaches to within the sensing range; when no object is present within the effective sensing range of the detector, no signal is processed.[2] Thus, Van Schyndel merely discloses a sensor that determines whether a physical object is **within the sensing range** of the detector. Van Schyndel fails to disclose a sensor that determines **the relative distance** between an object and an input device.

Because both Hinckley and Van Schyndel each fail to disclose the element of determining the relative distance between a data input device and a tracking surface as a function of a measured impedance, a combination of the two inventions also fails to disclose such an element. The Office asserts that if Hinckley were modified by Van Schyndel, the controller of Hinckley would process the touch signal when the user is proximate the touch area within the effective sensing range, and the effective sensing range corresponds to the relative distance between the input device and the tracking surface. Similarly, when the user is not proximate within the sensing range, no signal is inputted to the touch signal. Applicant submits that detecting whether an object is within the effective sensing range or outside of the effective sensing range merely determines whether an object is **closer or further** than a single distance; it does not actually determine the **relative distance** between the object and the device, as required by claim 27. The disclosure of a simple binary state that alternates between inside a sensing range and outside a sensing range offers no relevant teaching with respect to using measured impedance to determine a relative distance. Van Schyndel teaches only to compare voltage information with a single threshold to determine if the voltage is greater than or less then the threshold.[3] There is no teaching related to Applicant's more nuanced approach whereby measured impedance determines relative distance between the data input device and the tracking surface. Thus, the Office's combined invention only senses whether the object is within the

[2] Office action, page 2 (citing Van Schyndel col. 6, lines 40 to col. 7, line 35).
[3] U.S. Patent No. 6,859,141, column 9, lines 5-10.

effective sensing range, rather than determining the relative distance between the object and the data input device.

Accordingly, Applicant respectfully submits that the Office's combination does not teach or suggest each and every claim element of the claimed invention. As discussed above, neither cited reference teaches the processes of **measuring an electrical impedance** between the at least two electrodes and **determining the relative distance** between the data input device and the tracking surface as a function of the measured impedance. Applicant's application teaches that this failure in teaching is critical, as determining the relative distance based upon the measured electrical impedance as taught by Applicant can be used as a basis for controlling the operation of the device. As explained in the application,

> [t]he impedance sensor 29 has a measurement zone, generally indicated Z, **within which the impedance sensor measures an electrical impedance**. This measurement zone Z coincides with the tracking surface 25 when the device 21 is in use, allowing the impedance sensor to sense the proximity of the tracking surface . . . .[4] The data input device 21 further comprises a controller 33 for receiving data from and responding to the impedance sensor 29 for determining if the data input device is spatially separated from the tracking surface by at least a lift-off detection distance of D as a function of [the] measured impedance . . . .[5] The controller interprets impedance as indicative of relative distances between the tracking surface 25 and the device 21, such that the **distance between the device and the tracking surface is known and modes of operation of the device may be selected accordingly**.[6]

Thus, Hinckley, both alone and combined with Van Schyndel, is deficient because it fails to teach a method that determines the relative distance between the data input device and the tracking surface as a function of a measured impedance. For at least these reasons, Applicant respectfully submits that claim 27 is patentable.

In the Final Office action, the Office refers to Figs. 4A and 4B of Van Schyndel to show that it teaches the relationship between distance and measured voltage. Applicant agrees that such Fig. 4B shows a relationship between distance and voltage. But the Office improperly adds to this teaching, taking this teaching too far when it states that "Van Schyndel teaches the sensor that measures an electrical impedance (capacitive coupling) between the transmitting electrode

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[4] Application, page 6, paragraph [0025] (emphasis added).
[5] Application, page 6, paragraph [0026].
[6] Application, page 7-8, paragraph [0029] (emphasis added). See also paragraphs [0028] "determining proximity of the data input device and the tracking surface;" [0031] "determining the distance between the tracking surface and the device;" [0034] "determine the spatial separation between the tracking surface and the data input device."

and the receiving electrode and determines the relative distance between an object and the sending device." As discussed above, there is no support in the text or figures of Van Schyndel itself for such a determination of distance. The discussion of Fig. 4A and 4B is limited to noting that a decrease in distance will produce a decreasing DC output. Noting this fundamental relationship, however, is not the same as fashioning a device that **determines the relative distance** between the data input device and the tracking surface as a function of the measured impedance.

The Office continues by noting that the teaching of detecting whether an object is within the effective sensing range or outside of the effective sensing range reads on the determination of relative distance. Determining if an object is closer or further than a single distance is not the same as measuring the distance. The Office's observation is akin to saying that determining if a person is taller or shorter than an object is the same as measuring the height of the person. In the first case, the observer knows if the person is taller or shorter than the object, but in the second case, the observer actually has the height of the person. A teaching of the first case cannot be stretched to teach the second. Allowing such an expansion of Van Schyndel is contrary to the teaching of the reference and relies on improper hindsight.

Moreover, Van Schyndel teaches processing of its proximity detection signal in the same manner regardless of the distance from the sensor. This decouples the location information from the processing of the signal obtained by the sensor, such that the Examiner's suggested modification to the Van Schyndel device does not matter. At all times, the location information remains decoupled and is unavailable for use in determining distance, as required by the claim. Thus, the Examiner's modification of the prior art to obtain location information renders the prior art unsatisfactory for its intended purpose and would change the principle of operation.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 27. Claims 28 and 33-36, which depend directly or indirectly from claim 27, are submitted as patentable for at least the same reasons as set forth above with respect to claim 27.

Claims 1 and 29

For at least the reasons set forth above with respect to claim 27, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent claims 1 and 29. Claims

2-26, which depend directly or indirectly from claim 1, are also submitted as patentable for the same reasons as set forth above with respect to claim 1. Claims 31 and 32, which depend directly from claim 29, are submitted as patentable for the same reasons as set forth above with respect to claim 29.

CONCLUSION

It is believed that no fees are due in connection with this response. If however, the Commissioner determines a fee is due, he is hereby authorized to charge said government fees to Deposit Account No. 19-1345.

Applicant wishes to expedite prosecution of this application. If the Examiner deems the claims not in condition for allowance, the Examiner is invited and encouraged to telephone the undersigned to discuss making an Examiner's amendment to place the claims in condition for allowance.

Respectfully submitted,

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